1: Ingrams G-5 (1934-35)1936 MM2 Hadhramaut MM2

Rotation.—Heald states that mixed and overlapping rotations were found in Meifa and Asfal al 'Ain but, from careful enquiries, the following appeared to be the most popular:—Lucerne two years, followed by millet and the fourth year tobacco. If tobacco was not sown, the land was planted with another variety of millet. In some villages where lucerne was not grown, the rotation simply included tobacco and millet with sesame the third year. 242

In the Wadi Maseila the fields are constantly changed. One year a certain part of the wadi bed will be cultivated, stick huts and erections for drawing up the water built, and when the crop is harvested the Beduins move on elsewhere, returning again another season. Thus we frequently passed remains of cultivation, disused mud aqueducts and tumbled-down huts.

Diseases.—Heald states, "Excepting for the caterpillar attacking the young millet and tobacco, the crops were remarkably free from pests and disease; I carefully searched for stem borer in the millet but could find none, and also for the scale in the few citrus trees."

Trees and other vegetation of economic importance.

The *'elb* (*Sidr. Zizyphus Spina-Christi*, L.) has many uses. Apart from its blossoms, which are said to give the good taste to the Du'an honey, its fruit called *dōm* is eaten extensively by the Beduins when dates are lacking. The beams, pillars and doors of Hadhramaut houses are made from the timber, and the supply and carriage of the trunks give much employment to the Beduins. It also supplies good firewood. It is a fodder tree, and the leaves are also used as a substitute for soap. 137 262 313 242 [388]

Sār, a palm tree (*Hyphaene thebaica* (L.) Mart.), from which the Beduins gather the leaves called *sāf* for transport to the towns where they are made into mats, baskets, country string, etc. A popular drink called *nebidh* is also procured from this tree. 137 314 285 272

The long-thorned *sumr* (*Acacia spirocarpa* Hochst.) is perhaps the commonest tree in the Hadhramaut. It is a popular fodder for camels and is likewise eaten by goats. It supplies good firewood and a substance taken from the roots called *futukh* is used by fishermen for greasing their lines in order to make them strong. Another thorny tree, the *geradh* (*Acacia senegal* Willd.), is also a common fodder. Its leaves are used for tanning skins and it is said that the Beduins make a drink from them which they liken to tea. 137 246 314 372 272

The *musht* tree (*Grewia erythraea* Schweinf.), is used extensively for firewood and camel fodder. The leaves of the *ariata* tree (*Conocarpus erectus* Jacq.), which grows in the Wadi Maseila where it sometimes reaches a height of 50 to 70 feet, are dried for fodder, and the timber probably has its economic uses. I was told in Tarim of a large tree growing in Wadi Maseila the strong wood of which is used by carpenters; this may have been the *ariata*. 137 314 246 372

197 *Rakh* (*Salvadora persica* L.) is a very popular fodder with camels
314 and is found in abundance in the Wadi Maseila; it is also fairly
common round Du'an but practically non-existent to the north
●246 of Shibam. Goats do not eat it. It also provides the Beduins with
their favourite toothsticks.

Khuwcira, a small plant (*Cassia obovata* Coll.), is very popular with both camels and goats. There are of course many other plants on which they graze.

Manufacturing Industries.

496 Minor Industries include the extraction of simsim oil with camel
262 mills. In Mukalla there is a large oil factory with 31 compart-
249 ments in each of which a camel turns the usual primitive wooden
machinery for expressing the oil from sesame seed. The oil
extracted by this primitive process is much more popular for food
that that extracted by modern machinery. It is considered much
[231] sweeter. The residue forms a cake which is fed to camels.

339 There are kilns for lime-burning immediately to the east of
438 Mukalla and in many other places. In particular most excellent
353 lime is made in Seiyun and Tarim. This is applied as a plaster to
the interiors of the houses and polished with smooth flints till it
resembles marble.

28 Hides from the interior are tanned in Mukalla but none is
exported. At Gheil ba Wazir I saw a leather-worker using
Mukalla-tanned skins. Skins are also tanned in Shibam. The
dyeing of cloth, weaving, and mat-making are other minor
industries. Shihr in particular is well known for its beautiful
323 weaving. There are potteries in many places, and I saw the process
346 in Gheil ba Wazir. There are also good workers in silver at Gheil
ba Wazir, Shihr and Mukalla.

Fisheries.

228 The manufacture of fish fodder and manure and the preparation
251 of dried fish is a large industry of the coastal area. From an
262 export point of view, fish products come third in importance. They
231 are :—
438

Sifa (fish oil). Not much of this is made in either Mukalla or Shihr. The bulk is imported from the Mahri coast.

Wazif (dried *'aid* and other small fish). A great quantity of this is prepared in Mukalla and still more in Shihr. The sea is alive with these small fish, the catching and preparing of which gives work to many hundreds of fishermen. In both Mukalla and Shihr there are godowns for these fish which are stored before being taken to the interior for manure, camel fodder, or human consumption. The very small *'aid* fish are used for manure only, but the larger ones are eaten uncooked

8:Gt. Brit., Colonial Office G-3 (1951-52)1954 MM1 Aden
Hadhramaut MM2

which carry the water to bunded fields where the land is inundated to approximately one metre in depth. In the lower part of the district complete diversion of the flood is made by larger earth dams built across the river bed. Generally one metre depth of water is sufficient to raise the crops of sorghum, sesame and cotton, though summer planted crops which have to grow when water is low are given one or two supplementary irrigations.

The date of arrival of the floods is uncertain and the pattern of crop production may alter considerably according to the date of irrigation. For instance, early summer floods will only be used for sorghum fodder, grain, melons and sesame. Later summer irrigations are particularly required for cotton planting and for the autumn sown sorghum crop.

The Farming System

Skilled cultivation is carried on by settlers from many South Arabian tribes who have come to the area since the start of the scheme. Bunding of land, construction of field channels, ploughing and sowing are carried out by draught animals, mainly oxen though camels are brought in to help occasionally. No fertilisers are used at present ; the flood brings with it a heavy burden of silt which reaches the land and maintains its fertile state.

The basic problems concern the farming system. One is largely an irrigation problem caused by a rapid rise in the water-table which has taken place since irrigation was resumed. This rise in the water-table has caused an accumulation of salts in the upper layers of the soil, and has already made crop production on 2,000 acres practically impossible by flood irrigation methods. The other problem is weed control. As a gross area of 100,000 acres may be commanded in the future, and within this area an annual average of 30,000 acres may be cropped, it should be possible to afford long periods of fallow to land in order to reduce the dangers which may arise from heavy irrigation ; but individual ownership of land will greatly complicate such arrangements.

At the present time the cotton variety X.1730A, a derivative of Sakel, is the main cash crop grown. All other cash crops in the scheme are common to those of other irrigation tracts of a similar type in South Arabia though there are experimental crops, of which sugar is one. An important feature of the scheme is the need for a large area of sorghum for grain and fodder production. The draught animals depend almost entirely on sorghum fodder for their sustenance and the main food of the people is sorghum millet. It is expected that for some time two-thirds of the area will be maintained under sorghum and one-third under cotton.

Mechanical Equipment

The Board owns earth-moving machinery powered by diesel-engined crawler tractors with carry-all scrapers, bulldozers, a ripper and grader and two drag-line scrapers. The policy of the Board is to increase the

30: Gt. Britain G-5 (ca. 1918) 1920 MJ1 Saudi Arabia
Hadhramaut MM2

frenzy on religious matters, and ever ready to accuse any one, whose actions are not readily explained, of being an infidel, are apt to be rather slack in their devotions. Some even shirk their prayers at sunset, when such exercises are obligatory. Much of this attitude, however, has to do with their turbulent mode of life and illiteracy, for the most nonchalant are always ready to "fall in" behind any man who has the gift of prayer and follow his attitude and genuflexions, giving the responses with devout accuracy and attention. As to the religious self-denial with which they observe the fast of Ramadan (refusing to avail themselves of the exemption extended by the Koran to all travellers, sick persons, &c.) their austerity would shame more civilized Mussulmans.'

Products and Industries

The products of this region are so similar to those of the Yemen that they need no special treatment; and the crops are referred to in detail in the section on climate. The staple food-stuff of the country is either *dhura* or *dukhn*. Of *dhura* there are two chief varieties: white and red. The staple fodder for animals is, universally, the stalks and leaves of *dhura* and *dukhn*. As to the native industries they are not of any great importance, but attention may be called to the following:

Boat-building is carried on to a limited extent. Though a very great number of native craft of very varied type ply in Aden harbour and around the coast of this district, only 'jolly-boats' are built at Aden; they are after the model of an English rowing-boat, with heavier and stronger frames, and of very rough workmanship. Mat-making and string-making are carried on chiefly in the neighbourhood of Aden. Dry leaves of the *dom* and date-palms are imported from the ports of the Dankali and from Musawwa', and are manufactured into mats. String is also made by twisting the leaves together with the hand; this is called 'Aden string'. To make mats the leaves are divided into small strips, which are plaited into a ribbon three or four inches wide and of great length. The ribbon is stitched or spliced spirally into a cylindrical shape, the circumference representing the required breadth, and the axis the necessary length; this hollow cylinder is then cut down with a knife parallel to the axis, and the broken edges are bound. Somali women are exceedingly expert in the manufacture of such mats, which are in great request for sleeping purposes. The coarser kinds are largely used for the construction of sheds and the roofing of houses. Plates, baskets, sacks, and many other articles are made of such strips of matting.